ABSTRACT

A video editing system or tool for E-commerce utilizing augmented reality (AR) technology combines real and virtual worlds together to provide an interface for a user to sense and interact with virtual objects in the real world. The AR video editing system is usable in conjunction with an ordinary desktop computer and a low-cost parallel port camera. A known camera calibration algorithm is utilized together with a set of specially designed markers for camera calibration and pose estimation of the markers. OpenGL and VRML (Virtual Reality Modeling Language) for 3D virtual model rendering and superimposition. are utilized. Marker-based calibration is utilized to calibrate the camera and estimate the pose of the markers in the AR video editing system. The system comprises video input/output, image feature extraction and marker recognition, camera calibration/pose estimation, and virtual reality (VR) model rendering/augmentation. This allows a sales person to create and edit customized AR video for product presentation and advertisement. In the video, the sales person can present different aspects of the product while keeping eye-to-eye contact with customers. The system is capable of providing a user with real-time augmented reality feedback while recording a video. The augmented videos can be made available on E-Commerce Web-sites or they can be emailed to customers. Because of the real-time editing capability, the AR video can be directly broadcast on the Internet, for example, for an E-commerce advertisement. Inserted virtual objects can be hyper-linked to product specification WebPages providing more detailed product and price information.